

607 MISCELLANEOUS FENCING

607.01 CHAIN LINK FENCE

(A) DESCRIPTION. Work consists of furnishing, fabricating, assembling, and erecting chain link fencing along property line and/or adjacent to a roadway. The fence shall be erected to the lines, grades, and height as shown in the contract documents or as directed by the Engineer. Unless otherwise provided a top rail shall be used for a property fence and tension wire shall be used for the top of a fence adjacent to a roadway.

Where site conditions warrant, work shall also include clearing the fence line and disposing of resulting brush and debris, removal of high points in the existing ground between posts; connecting fences to other structures or existing fences, and other incidental work necessary to complete the specified work.

(B) MATERIALS. All materials shall meet the requirements of AASHTO M 181. Chain link fencing covered by this specification shall be one of the following types, as defined in AASHTO M 181:

Type I: Zinc-coated steel fabric, posts, hardware, and fittings.

Type II: Aluminum-coated steel fabric and zinc coated posts, hardware, and fittings.

Type III: Aluminum-alloy fabric, posts, hardware, and fittings.

Type IV: Vinyl-coated fabric.

Type I shall be used unless otherwise specified.

Fabric shall be made of 9 gauge wire, 2 x 2 inch mesh.

All pipe components shall be standard weight pipe of the following nominal diameters:

Intermediate posts - 2 inches
End, corner and pull posts - 2-1/2 inches
Top rail and braces - 1-1/4 inches
Tension wire - 6 gage

Posts for swing gates shall be standard weight steel pipe of the following nominal sizes for single swing gates or one leaf of double gates:

Gate Width	Nominal Diameter (inches)
Up to 6 feet	2-1/2
Over 6 to 13 feet	3-1/2
Over 13 to 18 feet	6
Over 18 feet	8

Concrete for post footings shall be as specified in 817, Class F.

Barbed wire, when specified, shall be of the 4 point pattern, composed of 2 strands of 12-1/2 gauge line wires with 14 gauge barbs spaced on approximately 5 inch centers.

(C) CONSTRUCTION REQUIREMENTS. Installation shall be by skilled mechanics experienced in the erection of this type fence. Construction shall be as follows:

1. The posts shall be set plumb in concrete footings as shown on the plans, spaced not more than 10 feet on centers. The minimum cross-section dimension of the footings shall not be less than 3 times the maximum cross-sectional dimension of the post, but in no case less than 9 inches.

2. The top rails shall be provided with expansion shield couplings or other suitable devices approximately every 20 feet. The couplings are to be outside sleeve type at least 7 inches long. Expansion spring couplings are to be installed at 100 foot intervals on sections over 100 feet long. The top rail shall pass through the base of the line post tops and form a continuous brace from end to end, and shall be securely fastened to the terminal and/or corner posts with heavy pressed steel connections.

3. The wire fabric shall be fastened to the terminal and/or corner posts using a 1/4 by 3/4 inch tension bar fastened to the posts with heavy 11 gauge, 1 inch wide pressed steel bands spaced approximately 14 inches apart. The bands are to be connected with 3/8 inch diameter carriage bolts and nuts. The fabric is to be stretched to proper tension and fastened to all line posts with heavy 6 gauge wire clips spaced approximately 14 inches apart and to the top rail with 9 gauge tie wires on approximately 24 inch centers. The wire fabric is to be attached to a bottom tension wire of No. 6 gauge with hog rings on approximately 24 inch centers. The bottom of the fabric is to be held as uniformly as is practical to 2 inches above the finished grade.

4. All terminal and/or corner posts shall be braced by a 1-1/4 inch diameter horizontal brace. This brace shall be securely attached to the terminal post, the corner post, and to the posts adjacent to expansion couplings, and to the next adjacent line post midway between the top rail and the ground. This brace shall be truss-braced from the line post to the terminal or corner post with a 3/8 inch round truss rod complete with tightening unit. Corner posts and line posts, at intervals of 1,000 feet, shall be trussed and braced in both directions.

Changes in line where the angle of deflection is 30 degrees or more shall be considered as corners, and corner post bracing shall be installed.

5. Gate frames shall be constructed of 1.50 inch nominal diameter standard weight pipe with heavy malleable iron or pressed steel corner fittings securely riveted. Fabric to match the fence shall be installed in the frame by means of tension bars and hook bolts. Each frame shall be equipped with heavy 3/4 inch diameter adjustable truss rods. Bottom hinges shall be ball and socket type designed to carry the weight of the gate on the post footing. Upper hinge shall be wraparound adjustable type. All gates shall be equipped with a positive type latching device with provisions for padlocking. All drive gates shall be provided with center plunger rod, catch, and semiautomatic outer catches to secure gates in opened position.

6. All posts shall be equipped with malleable, cast iron or pressed steel ornamental tops or extension arms for barbed wire as shown on the plans. Tubular post tops are to be so designed as to exclude moisture from the post. All intermediate post tops shall be designed to hold the top rails.

7. When barbed wire is specified it shall be stretched to proper tension and securely fastened to the framework members by the use of heavy wire pins.

8. Where fencing crosses a drainage ditch, a line post shall be set on each side of the ditch so that the bottom of the fence is low enough to preclude the possibility of anyone climbing underneath. No post shall be set in a drainage ditch unless indicated in the contract documents. Posts shall be fitted with tops as shown on the plans, or other approved tops so designed as to fit securely over the posts and carry the top tension cable.

(D) MEASURE AND PAYMENT. The unit of measure will be the linear foot. The number of linear feet will be the actual length of Chain Link Fencing, complete in place, measured horizontally along

the fence from center to center of end posts. Gates will be measured on the basis of the count or number of each type or size installed complete.

Payment will be made at the contract unit price per linear foot, which payment will include the fabricating and furnishing of all materials, labor, tools, equipment, and incidentals necessary to complete the work.

Gates will be paid for at the contract unit price per each type or size as counted, which payment will include the fabricating and furnishing of all materials, labor, tools, equipment, and incidentals necessary to install the gate or gates complete in place.

607.02 SAFETY FENCE SHIELDING

(A) DESCRIPTION. Work consists of the fabricating, furnishing, assembling, and erecting safety fence shielding on bridges and overpasses. The shield shall be constructed to the lines and grades and height shown in the contract documents.

(B) MATERIALS.

All materials shall meet the requirements of 607.01(B).

Plates shall meet the requirements of AASHTO M 183.

Anchor bolts shall meet the requirements of ASTM A 307, Grade A.

(C) CONSTRUCTION REQUIREMENTS. Installation shall be by skilled mechanics experienced in the erection of this type fence. Construction shall be as follows:

1. The posts shall be set plumb and as shown in the contract documents.
2. The top rails shall be provided with expansion couplings at each expansion joint in the structure. The couplings are to be inside sleeve type at least 7 inches long and suitably welded to the rail. Expansion couplings shall be galvanized after welding.
3. The wire fabric shall be fastened to the terminal and/or corner posts using a 3/16 by 3/4 inch tension bar fastened to the posts with heavy 11 gauge, 1 inch wide pressed steel bands spaced approximately 12 inches apart. The bands are to be connected with 3/8 inch diameter carriage bolts and nuts. The fabric is to be stretched to proper tension and fastened to all line posts with heavy 6 gauge wire clips spaced approximately 14 inches apart and to the top rail with 9 gauge tie wires on approximately 24 inch centers. The wire fabric is to be attached to a bottom tension wire of No 6 gauge wire with hog rings on approximately 24 inch centers. The bottom of the fabric is to be held as uniformly as is practical to 2 inches above the finished grade.
4. All terminal and/or corner posts shall be braced by a 1-1/4 inch diameter horizontal brace. This brace shall be securely attached to the terminal post, the corner post, and to the posts adjacent to expansion couplings, and to the next adjacent line post midway between the top rail and the ground. This brace shall be truss-braced from the line post to the terminal or corner post with a 3/8 inch round truss rod complete with tightening unit. Corner posts and line posts, at intervals of 1,000 feet, shall be trussed and braced in both directions.
5. Welding shall conform to the requirements of 706.18.

(C) MEASURE AND PAYMENT. The unit of measure for Safety Fence Shielding will be the linear foot. The actual length of Safety Fence Shielding measured horizontally along the fence from center to center of end posts, will be paid for at the contract unit price per linear foot, which payment will include

the fabricating and furnishing of all materials, labor, tools, equipment and incidentals necessary to complete the work.

607.03 CONSTRUCTION BOARD FENCE (SOLID WOOD FENCE)

(A) DESCRIPTION. Work includes furnishing, installing, maintaining, relocating and removing 8-foot high board fencing around the construction area as shown on the contract plans and as directed by the Engineer. The board fence shall be painted (all sides) with a neutral shade of green color paint approved by the Engineer. Maintenance will include, but not limited to, any repainting or repairing as directed for the duration of the contract.

The fence shall be constructed with 1 x 6 inch boards and with 2 x 4 inch top and bottom horizontal brace members, and supported by 4 x 4 inch posts at a maximum spacing of 8 feet apart. Posts shall be set in augered holes or driven a minimum depth of 2 feet into the ground. Each post shall be braced by a 2 x 4 inch brace member meeting each post at a 45 degree angle and placed in the ground to a depth of approximately 2 feet. Lumber shall be Grade No. 2 common square cut. The Engineer shall approve the materials before and after installation.

Each tree not scheduled for removal but which may be damaged by construction activity on this project shall, upon the direction of the Engineer, be protected by tree boxes of a minimum size of 6 feet square and 8 feet high. Trees enclosed by the work area board fence may be protected as directed. Hand excavation shall be used beneath the low branches of trees where the use of mechanical equipment might be injurious to tree limbs.

(B) MEASURE AND PAYMENT. The unit of measure will be the linear foot of fence installed, and measured along the top edge of the fence including gates and tree boxes as needed.

Payment for CONSTRUCTION BOARD FENCE will include gates and tree boxes as needed and be made at the contract unit price per linear foot installed, which payment will include all materials, erection, hardware, locks and keys, tree boxes, painting, repainting, maintenance, repair and removal, and all labor, tools, equipment and incidentals needed to complete specified work.

607.04 SNOW FENCE

(A) GENERAL. When performing construction and subsequent restoration in the project area, the Contractor shall be required to protect the work area as shown on the contract plans or as indicated by the Engineer. Work under this item consists of furnishing all materials, installing, relocation if necessary and removal and disposal of the fence, all as shown on the plans and as specified herein.

(B) MATERIALS. Fencing shall be of a type used for snow protection and shall have a minimum height of 3 feet 6 inches. Posts shall be steel "U" bars, 3 pounds per foot, and either galvanized or painted.

(C) CONSTRUCTION METHODS. Installation of the fence shall be performed prior to commencement of construction, or at a time required by the Engineer.

Where indicated on the Contract Drawings, erosion protection shall be provided by means of straw bales placed immediately adjacent to the fencing. Bales shall be secured to the fencing by approved means.

Removal and disposal of the fence shall be done at a time during and/or after restoration of property, as required by the Engineer.

(D) MEASURE. The unit of measure for SNOW FENCE will be the linear foot. The number will

be the actual number of linear feet of fence installed complete, as measured along the base of the fencing.

(E) PAYMENT. Payment for SNOW FENCE will be made at the contract unit price per linear foot, which payment will include furnishing all materials such as fencing, posts, hardware and straw bales, installing, relocating if necessary, and removal and disposal and all labor, materials, tools, equipment and incidentals needed to complete work specified herein.